TITLE: EVALUATION OF ANTIBACTERIAL ACTIVITY OF SOUTHERN MATO GROSSO DO SUL PROPOLIS

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ABSTRACT:

Propolis has traditionally been indicated for the treatment of a wide range of ailments, which has been attributed to its broad biological properties. Due to the great biodiversity of Brazil, propolis composition from different geographic regions varies, and several distinct propolis types have been described in this country. Therefore, the aim of this study was to evaluate the antibacterial activity of the EtOH extract of a propolis sample from the Southern region of Mato Grosso do Sul, as well as phases obtained from its partition. The propolis sample was collected in April, 2016, and extracted with EtOH 95% at room temperature. The EtOH extract was subjected to partition procedures between methanolI:H_2O (9:1) and hexane, and subsequently between methanol:H_2O (1:1) and dichloromethane, and between methanol: H_2O (1:1) and ethyl acetate. The antibacterial activity of the extract and phases was assessed against *Staphylococcus aureus* ATCC 29213, *Escherichia coli* ATCC 25922, and *Pseudomonas aeruginosa* ATCC 27853. The minimal inhibitory concentration (MIC) values were determined using the micro-broth dilution method according to the protocols of the CLSI. Stock solutions of samples in DMSO were submitted to serial dilutions in order to obtain the final concentrations ranging from 2 to 1000 μg ml^{-1}. The final concentration of DMSO in the assay did not exceed 1%. Gentamicin was used as positive control. The assays were done in triplicate and repeated in two independent experiments. Resazurin (0.01% m/v) was used to assess viability of the microorganisms. The present study indicates that extract and phases of propolis from Southern Mato Grosso do Sul showed MIC values >1000µg/ML against all foregoing microorganisms. Despite traditional reputation of propolis as an antimicrobial agent, the extract of the propolis sample from Southern Mato Grosso do Sul has not showed any antibacterial activity against the bacterial strains tested. The season in which the propolis sample was collected, and/or its botanical source might be responsible by variations in its antibacterial activity, since these factors are known to influence the chemical composition of propolis worldwide.

Keywords: Propolis, Antibacterial activity, Extract.

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